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FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF SECRETARY

In the Matter of )  
)  
Allocation of Spectrum Below )  
5 GHz Transferred from )  
Federal Government Use )

ET Docket No. 94-32

To: The Commission

REPLY COMMENTS OF  
THE PART 15 COALITION

The Part 15 Coalition ("the Coalition") submits these reply comments in the above-referenced proceeding.<sup>1</sup> As set forth below, and in its initial comments, the Coalition supports retaining the use of the 2402-2417 MHz band by unlicensed Part 15 technologies and opposes auctioning this band for licensed or unlicensed services.

DISCUSSION

**I. The 2402-2417 MHz Band Is Essential for Part 15 Technologies.**

The comments in this proceeding demonstrate the wide-ranging support for unlicensed Part 15 technologies and the services that are based on those technologies.<sup>2</sup> These technologies are responsible for "millions of installed devices

<sup>1</sup> Allocation of Spectrum Below 5 GHz Transferred from Federal Government Use, Notice of Proposed Rulemaking, ET Docket No. 94-32 (rel. Nov. 8, 1994) ("NPRM").

<sup>2</sup> See, e.g., Comments of Cylink Corporation; Comments of Apple Computer, Inc.; Comments of Tetherless Access Ltd.; Comments of Xircom; Comments of Metricom, Inc.; Comments of Western Multiplex Corporation; Comments of Motorola, Inc.; Comments of Industrial Telecommunications Association, Inc. ("ITA"); Comments of Compaq Computer Corporation; Comments of 3Com Corporation; Comments of Rockwell International Corporation; Comments of Advanced Micro Devices, Inc. ("AMD"); Comments of International Business Machines Corporation ("IBM"); Comments of Wireless Information Network Forum, Inc. ("WINforum"); Comments

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and immeasurable public benefits.”<sup>3</sup> Part 15 technologies make possible, among other things, wireless local area networks, which allow the networking of computers in environments where “rewiring is either impractical ...or dangerous”;<sup>4</sup> digital modems used in a variety of “educational, safety, commercial, and industrial applications”;<sup>5</sup> fire and security alarms;<sup>6</sup> and cordless telephones.<sup>7</sup>

Many parties support the Coalition’s view that these and other valuable products and services will be lost if the Commission introduces additional licensed services to the 2400 MHz ISM band. Licensed services and unlicensed Part 15 devices cannot share the spectrum at 2402-2417 MHz efficiently.<sup>8</sup> The record in this proceeding makes clear that, because of interference from microwave ovens and other ISM devices above 2417 MHz, access to the 2402-2417 MHz sub-band is critical to Part 15 technologies operating in the 2400 MHz ISM band at all.<sup>9</sup> Thus, adding licensed services to this portion of the band would drive many Part 15 technologies from the entire 2400 MHz ISM band, not merely from the sub-band being licensed.

Aside from the significant loss of consumer benefits that would result, the comments establish that such a displacement of Part 15 technologies would be costly to U.S. industry and its global competitiveness. The many products and services

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of IEEE P802; Comments of AT&T Corporation; Comments of Norand Corporation; Comments of the Consumer Electronics Group of the Electronic Industry Association (“EIA/CEG”); Comments of Telecommunications Industry Association; Comments of Microsoft Corporation; Comments of Symbol Technologies, Inc.

<sup>3</sup> Cylink Comments at 3.

<sup>4</sup> IBM Comments at 9.

<sup>5</sup> Cylink Comments at 2.

<sup>6</sup> AMD Comments at 3.

<sup>7</sup> Norand Comments at 6.

<sup>8</sup> See Comments of Andrew Corporation at 6 (licensed services “will simply overpower lower power devices”); Symbol Comments at 8 (“licensed services employing exceptionally sensitive receivers can be vulnerable to interference from nearby Part 15 transmitters”).

<sup>9</sup> See IBM Comments at 7; Andrew Corporation Comments at 7; 3Com Comments at 2.

provided by Part 15 technologies are the result of over two billion dollars of investment and countless "person-years" of effort by American companies.<sup>10</sup> Not only would this direct investment in Part 15 technologies be lost if the 2402-2417 MHz band were reallocated for licensed services, but continued U.S. leadership in this segment of the telecommunications market would be jeopardized. As the Consumer Electronics Group of the Electronic Industries Association put it:

U.S. manufacturers of Part 15 devices are market leaders and have consistently been in the forefront of developing new technologies. If they are forced to abandon domestic use of this band because of the proposed reallocation, their ability to compete in foreign markets would be threatened. Efficient production of sophisticated communications equipment requires a certain scale in order to be economically viable. The export market alone would often not be sufficient to maintain production, resulting in the loss of exports and American jobs.<sup>11</sup>

Indeed, several parties have shown that the mere suggestion in the NPRM that Part 15 devices will be displaced may discourage future investment in Part 15 technology.<sup>12</sup> As these parties emphasize, the need for a stable regulatory environment is indispensable to the future development of Part 15 technologies.

In sum, the record in this proceeding demonstrates that there is overwhelming support for retaining unlicensed Part 15 use at 2402-2417 MHz and for encouraging the continued growth and vitality of this important segment of the telecommunications industry.

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<sup>10</sup> E.g., IBM Comments at 5-6 ("tens of millions of dollars" committed to the development of the IBM Wireless LAN); AMD Comments at 4-5 ("billions of dollars in research and development" at risk); Norand Comments at 5-7 ("enormous sums of money" spent on development of Part 15 devices).

<sup>11</sup> EIA/CEG Comments at 5-6; see also IBM Comments at 3 (reallocation of this band for licensed services "would not create new jobs or foster economic growth").

<sup>12</sup> See, e.g., IBM Comments at 17; Xircom Comments at 2.

## **II. The Proposal to Auction the 2402-2417 MHz Band is Flawed.**

Although the Commission has proposed to allow market forces, as reflected in competitive bidding, to assign use of the 2402-2417 MHz band, a number of parties question the Commission's authority to do so.<sup>13</sup> These parties demonstrate that the auction authority conferred by Congress was not intended to substitute for the Commission's responsibility to allocate spectrum in the public interest, particularly when the interests of unlicensed radio services are involved.<sup>14</sup> Without taking a position on the question of the Commission's authority to auction the 2402-2417 MHz band, the Coalition opposes such a use of competitive bidding mechanisms on public policy grounds.

Although markets can weigh the value of goods for exclusive private use efficiently, they tend to undervalue public goods, such as unlicensed, shared-use spectrum. The aggregate public benefits derived from the sharing of the 2402-2417 MHz band by a variety of unlicensed users far exceeds the value that any one licensee would place on that band. A spectrum auction cannot accurately reflect this balance. For these reasons, the Coalition urges that the Commission not auction the 2402-2417 MHz band as proposed in the NPRM.

## **III. No New Licensed Service Can Use the 2402-2417 MHz Band Effectively.**

Despite the Commission's invitation for suggestions regarding new services that might be licensed in the 2402-2417 MHz band, no party has offered any

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<sup>13</sup> See, e.g., ITA Comments at 5; Comments of Manufacturers Radio Frequency Advisory Committee, Inc., at 4; Motorola Comments at 15-16; Norand Comments at 12; WINforum Comments at 6-8.

<sup>14</sup> See H.R. Rep. No. 103-111 at 253 (competitive bidding not to be used for unlicensed services); see also Implementation of Section 309(j) of the Communications Act - Competitive Bidding, 9 FCC Rcd 2348, 2358 & n.50 (1994) (same).

plausible alternative to the present uses of this band. In contrast to the many parties supporting continued use of the band by Part 15 devices, very few parties proposed any alternative service specifically for the 2402-2417 MHz band.<sup>15</sup> Moreover, as demonstrated below, the few alternatives that were offered fail to account for the unique characteristics of this band.

First, LEACO argues that the entire 50 MHz of spectrum available for reallocation should be committed to the “provision of interactive video, voice and data services in a manner that will ensure their availability in rural areas.”<sup>16</sup> LEACO’s argument, however, focuses on the general need for service in rural areas and the current failure of spectrum auctions to provide such service. LEACO avoids discussing the specific attributes of the 2402-2417 MHz band, the services that might be provided in that band, or the opportunity cost of losing products and services presently provided by Part 15 technologies.

Similarly, the Los Angeles County Sheriff’s Department proposes that the entire 50 MHz at issue in this proceeding be reallocated for public safety purposes. However, it too fails to address the specific problems and issues posed by the reallocation of the three bands identified in the NPRM.<sup>17</sup>

The Coalition agrees that auctions are a poor substitute for spectrum allocation based on public interest considerations, but it opposes any suggestion that the 2402-2417 MHz band could serve the purposes of either LEACO or the L.A.

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<sup>15</sup> See Comments of Loral/Qualcomm Partnership L.P. at 4; Comments of Tadiran Telecommunications, Ltd. (filed Dec. 20, 1994) at 2-4; Comments of Leaco Rural Telephone Cooperative, Inc., (“LEACO”); Comments of Los Angeles County Sheriff’s Department; see also Comments of the Wireless Cable Association International, Inc. (asking that “some portion” of the 50 MHz be reallocated to wireless cable).

<sup>16</sup> LEACO Comments at 1.

<sup>17</sup> L.A. County Sheriff Comments at 2; see also Comments of Los Angeles County (same).

County Sheriff efficiently. The Commission itself has made clear that the 2402-2417 MHz band offers a uniquely challenging environment for radio communications devices.<sup>18</sup> As noted in the comments, the presence of microwave oven emissions in the band make it particularly unsuitable for licensed services.<sup>19</sup>

In addition, new industrial lighting systems and other new high-powered ISM applications, which generate high levels of radio “noise” in the 2400 MHz band, will impair the band further.<sup>20</sup> Indeed, the International Microwave Power Institute notes its concern regarding the tension between expanding ISM applications and extensive commercial communication use in the 2400 MHz band.<sup>21</sup> Nonetheless, the L.A. Sheriff hypothesizes that the “potential for interference from existing microwave ovens and other ISM devices in the 2.4 GHz bands” might be alleviated by the placement of fixed receiver sites in non-residential areas.<sup>22</sup> The L.A. Sheriff offers no basis for its optimism and the balance of the record is to the contrary.<sup>23</sup>

Tadiran Telecommunications Ltd. suggests that the 2402-2417 Mhz band might be used for wireless local loop (“WLL”) services. Although Tadiran posits that WLL systems can operate under Part 15 rules (low-power, spread spectrum transmission) and thus largely be immune to ISM interference, Tadiran acknowledges that existing Part 15 technologies would need to “vacate” the 2402-

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<sup>18</sup> FCC Report to Ronald H. Brown, Secretary, U.S. Dep’t of Commerce, Regarding the Preliminary Spectrum Reallocation Report, ¶¶ 38, 50 (rel. Aug. 9, 1994).

<sup>19</sup> See, e.g., EIA/CEG Comments at 5.

<sup>20</sup> See Comments of Fusion Lighting, Inc., at 2; Comments of Fusion Systems Corporation at 3-4 (microwave lighting systems will spread radio transmissions throughout the 2400 MHz ISM band); Comments of International Microwave Power Institute (“IMPI”) at 2 (listing new industrial ISM applications in the 2.4 GHz band).

<sup>21</sup> IMPI Comments at 2.

<sup>22</sup> L.A. County Sheriff Comments at 5.

<sup>23</sup> See, e.g., IMPI Comments at 2; Rockwell Comments at 5 (2400 MHz band ill-suited for public safety communications).

2417 MHz band.<sup>24</sup> However, even if clearing the band of Part 15 technologies were not “wholly unworkable,” which it is,<sup>25</sup> it would be contrary to the public interest.

As outlined above, the displacement of existing Part 15 operations would occasion a significant loss of public benefits. There is no indication in the record that this loss would be offset by the addition of WLLs at 2402-2417 MHz. Indeed, the record demonstrates that WLL will provide “uncertain and, in any event, marginal benefits” to the public.<sup>26</sup>

Finally, Loral/Qualcomm L.P. suggests that the 2402-2417 MHz band might be used for downlinks for mobile satellite services.<sup>27</sup> Although Loral/Qualcomm maintains that MSS downlinks would be unaffected by Part 15 and ISM interference in this band, others caution against the use of this band for satellite communications services.<sup>28</sup>

Moreover, even if MSS space-to-earth transmissions were unaffected by ISM and Part 15 users, a downlink MSS allocation of this band might have a negative impact on the radar operations at Arecibo Observatory.<sup>29</sup> Thus, Loral/Qualcomm’s suggestion not only is impractical from a spectrum management standpoint, but it also poses a serious threat to scientific and educational interests. Preserving the current allocation would protect these interests.

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<sup>24</sup> Tadiran Comments at 3.

<sup>25</sup> Comments of American Petroleum Institute at 5.

<sup>26</sup> Compaq Comments at 10.

<sup>27</sup> Loral/Qualcomm Comments at 4.

<sup>28</sup> See, e.g., Fusion Systems Comments at 4 (“to use the 2402-2417 MHz band for such technologies as mobile satellite [services]...would appear to be incompatible with widespread ISM applications”).

<sup>29</sup> Comments of Cornell University at 3. The research done at the Arecibo Observatory “is unique in the world.” Id.

## CONCLUSION

The Comments filed in response to the NPRM overwhelmingly support retaining the 2402-2417 MHz band for incumbent users, including unlicensed Part 15 technologies. Moreover, the comments fail to offer any plausible alternative service for the 2402-2417 MHz band. Indeed, the comments filed in this proceeding by the ISM interests point to the growing incompatibility between ISM devices, particularly new industrial lighting systems and microwave ovens, and Part 15 devices.

Accordingly, rather than seeking ways to add new, licensed services to the 2402-2417 MHz band, which would have a devastating effect on Part 15 technologies, the Part 15 Coalition urges that, as recently recommended by NTIA, the Commission strongly reaffirm the value of using the 2400 MHz ISM band for unlicensed communications technologies and take steps to foster and protect such unlicensed uses of the spectrum.

Respectfully submitted,

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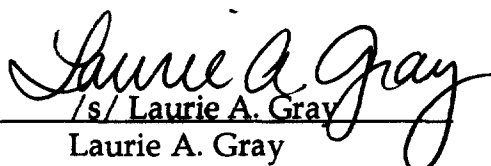
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